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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/849,753	05/20/2004	Ching-Tung Wang	TET-PT051	7348

3624 7590 06/22/2005

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EXAMINER	
XIAO, KE	

ART UNIT	PAPER NUMBER
2675	

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/849,753	WANG ET AL.	
	Examiner	Art Unit	
	Ke Xiao	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Kim (US 2001/0015716).

Regarding claims 1 and 2, admitted prior art teaches a method for driving a liquid crystal display device, comprising steps of:

providing a polarity inverting signal and digital video data, said polarity inverting signal having a frequency higher than a scan frequency of scan lines and equal to the display frequency of sub-pixels (Fig. 1-2D, Pg. 2 paragraph [0004]); and

converting said digital video data into an analog video data, said analog video data having a polarity inverting frequency substantially equal to said frequency of said polarity inverting signal (Fig. 1-2D, Pg. 2 paragraph [0005]).

Admitted prior art does not teach that the polarity inverting signal has a frequency lower than a display frequency of sub-pixels as claimed and equal to the switching frequency of a pixel wherein each pixel is made up of three adjacent sub-pixels.

Kim teaches a method of polarity inversion, which has a frequency lower than a display frequency of sub-pixels. Kim specifically teaches that inversion only occurs between pixels made up of three adjacent sub-pixels, which means that the polarity inversion signal is equal to that of the switching frequency of the pixels (Kim, Fig. 6a).

It would have been obvious to use the pixel inversion method as taught by Kim in the display device as taught by admitted prior art in order to prevent coupling capacitance between pixel electrodes, and eliminate pixel defects caused by the short of one or two pixels (Kim, Pg. 2 paragraph [0032]). The polarity inversion signal as taught by the combination of admitted prior art in view of Kim would have a frequency higher than the scan frequency as well as lower than the sub-pixels display frequency as claimed.

Regarding claim 6, admitted prior art teaches a device for driving a liquid crystal display device, comprising:

a liquid crystal display panel;

a time sequence controller providing a polarity inverting signal and outputting a digital video data, said polarity inverting signal having a frequency higher than a scan frequency of scan lines and equal to a display frequency of sub-pixels (Fig. 1-2D, Pg. 2 paragraph [0004]); and

a source driver electrically connected to said time sequence controller and said liquid crystal display panel for converting sad digital video data into an analog video data according to said polarity inverting signal and said digital video data, said analog

video data having a polarity inverting frequency substantially equal to said frequency of said polarity inverting signal (Fig. 1-2D, Pg. 2 paragraph [0005]).

Admitted prior art does not teach that the polarity inverting signal has a frequency lower than a display frequency of sub-pixels as claimed and equal to the switching frequency of a pixel wherein each pixel is made up of three adjacent sub-pixels.

Kim teaches a polarity inversion signal, which has a frequency lower than a display frequency of sub-pixels. Kim specifically teaches that inversion only occurs between pixels made up of three adjacent sub-pixels, which means that the polarity inversion signal is equal to that of the switching frequency of the pixels (Kim, Fig. 6a).

It would have been obvious to use the pixel inversion method as taught by Kim in the display device as taught by admitted prior art in order to prevent coupling capacitance between pixel electrodes, and eliminate pixel defects caused by the short of one or two pixels (Kim, Pg. 2 paragraph [0032]). The polarity inversion signal as taught by the combination of admitted prior art in view of Kim will then have a frequency higher than the scan frequency as well as lower than the sub-pixels display frequency as claimed.

Regarding claims 3 and 8, Kim further teaches that three adjacent sub-pixels consisted in each pixel are red, green, and blue sub-pixels (Kim, Fig. 10, Pg. 3 paragraphs [0050-0053]).

Regarding claims 4 and 9, admitted prior art further teaches that the analog video data includes a first or a second data, and the first and second data have the same absolute value of potential differences, but have contrary polarities (Pg. 2 paragraph [0003]).

Regarding claims 5 and 10, admitted prior art further teaches that the analog video data are outputted to two ends of a display electrode of said LCD panel (Pg. 2 paragraph [0003]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571)272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571)272-3638. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 15th, 2005 - kx -

SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER